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ABSTRACT

A 5-year longitudinal study of 15,000 community college students was conducted to examine student behaviors and outcomes. The importance of longitudinal studies in the analysis of student outcomes data and as a baseline for future student tracking systems is discussed. The computer methodologies by which the data were collected and analyzed are also discussed. Based on the findings, students were grouped into a number of mutually exclusive categories: full-time completers; part-time completers; successful non-completers; non-successful non-completers; and zero-credit earners. The aggregate behavior of each group was analyzed with respect to three common outcomes measures, median grade point average, median attrition ratio, and median total credit hours earned. Conceptualizations of success from the point of view of the institution and of the student are also discussed. A need is found for a model of behaviors that will specify under what circumstances attitudinal indicators will be used and under what conditions behavioral indicators will be used. Contains 6 references. (KM)

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A FIVE YEAR LONGITUDINAL STUDY OF COMMUNITY COLLEGE STUDENT BEHAVIORS: TOWARD A DEFINITION OF STUDENT SUCCESS AND STUDENT FAILURE

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This paper was presented at the Twenty-Ninth Annual Forum of the Association for Institutional Research held at the Omni Inner Harbor Hotel and the Lord Baltimore Hotel, Baltimore, Maryland, April 30 - May 3, 1989. This paper was reviewed by the AIR Forum Publications Committee and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC Collection of Forum Papers.

Teresa Karolewski
Chair and Editor
Forum Publications Editorial
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Abstract

The results and implications of a five-year retrospective longitudinal community college student study are presented. The importance of longitudinal studies in the analysis of student outcomes data and as a baseline for future student tracking systems is discussed. The computer methodologies by which the data are collected and analyzed are also discussed. The bulk of the paper deals with a typology of student behaviors with respect to student outcomes, which resulted from the research and the typology's usefulness in developing a model of student success/failure. The intended audience is any higher education professional interested in student tracking, outcomes, and success.

The following work lays out in some detail the first phase of a major project currently underway at the Dallas County Community College District (DCCCD). The project's ultimate objective is to develop a typology of community college students which would allow one to rigorously define successful and unsuccessful outcomes for each typology segment.

The Context of the Discussion

In recent years the topic of student success and student failure in community colleges has experienced renewed vigor. In large part this is due to the current nation-wide interest in institutional assessment. Although an analysis of the origins and probable effects of the national assessment movement is beyond the scope of this work (for a discussion of both topics, see Advisory Committee to the College Outcomes Evaluation Program (1987)), one outcome of this movement is clear: a re-examination of the effectiveness of community colleges.

Part of this comes from community colleges' tradition of the open door. In the minds of many lay people and political leaders, a highly selective institution is *ipso facto* an excellent one, while one that is not selective, or indeed open-door, can only aspire to be mediocre. Over the years, and with varying degrees of success, community college educators have countered this myth.

Indeed, community college advocates have always maintained that the great variety of students attracted to such accessible institutions has been of the great strengths and unifying themes of community colleges. However, what is perhaps a natural outgrowth of the open door leads to an even more fundamental questioning of the value of community colleges.

Community colleges have historically had very low graduation and retention rates compared to their four-year counterparts. Of course, this is an unfair comparison, based on the assumption that most community college students begin their postsecondary education with the intention of earning an associate degree after two years of full-time study. By now it is well known that community colleges, in addition to addressing the needs of 18 and 19 year old full-time, degree-seeking students, also serve a wide variety of people, from displaced homemakers and workers, to people wishing to upgrade job skills, to people simply taking courses for pleasure. Clearly, the relative success of such a broad gamut of students and student intentions cannot be measured by a single yardstick. However, by community colleges' insistence on the relativity of student success they have tended to avoid confronting the issue of exactly what is meant by the term "student success" in the community college context. This issue has become especially pertinent because under the imperatives of assessment and accountability community colleges are being asked to document student success.

Of course, assessment has another side, that of institutional improvement. Within this realm an area which has received much attention as of late is that of identifying at risk students and

increasing their chances of success. However, at least in community colleges, the issue is not so cut and dried. When we speak of at risk students the implication is that the students are at risk of failing. However, if we do not have a good idea of what success in the community college is, do we have any better idea of what failure is?

Clearly, what is needed is a typology that would allow for the full range of diversity of students that one typically finds in a community college. In order to be useful, such a typology must satisfy a number of conditions: a) it must be operationalizable; b) it must arise from an analysis of actual student behavior, over time, and not on a priori conceptualizations of what student behavior should be; and c) it must be sufficiently generic to be useful in a variety of situations.

A necessary first step in developing a typology, then, is to perform some kind of longitudinal study of student behavior. That is, we would identify a cohort of students and track them throughout their careers at the Dallas County Community Colleges. Especially in a community college environment, longitudinal studies are crucial to an understanding of student behaviors with respect to a whole series of outcomes-related and other issues (e.g., student persistence, minority achievement)

Longitudinal studies of college or post-high school students are not new (see Bers (1988); Eagle, Fitzgerald, Gifford, Zuma, and MPR Associates (1988); Sheldon (1982); Simpson (1987); Vorhees (1987)). However, none of the studies mentioned has explicitly dealt with issues of student typologies for the purposes of defining student success. Sheldon (1982 pp. 1-30 - 1-34) did make

an attempt to classify community college students into 18 "prototypes". However, he does not propose any success model and indeed, some of his prototypes have limited applicability to such a model (e.g., "The Intercollegiate Athlete").

Methodological Considerations

We chose to perform a retrospective longitudinal study. We did this because unlike real-time student tracking studies (e.g., Sheldon (1982)), researchers do not have to wait several years in order to accumulate the data necessary to make any generalizations about student behaviors. Furthermore, in the implementation of a real-time student tracking system, a retrospective longitudinal study becomes a very useful complement, giving the researcher baseline data with which to compare future cohorts.

Of course, the major drawback to a retrospective study of this type is that the researcher can only analyze what data has been saved. And since student data bases are primarily administrative tools and are designed as such, there can be many holes in the data. An obvious hole is data the researcher might find interesting (e.g., student intent) which simply was not collected. A more insidious problem are those variables which are collected but are time-dependent, that is, they are not frozen in the data base. An example of this is time of registration for a course. Because DCCCD registration files are regularly purged after each semester, there is no way of knowing how many students in the past regularly registered late for courses and what effect this had on their subsequent academic performance.

In order to economically get as much data as possible, we

chose the earliest cohort maintained in the active student data base. This was Fall 1982 and consisted of some 15,000 first-time students. We extracted their full academic histories from their first semester through Spring 1988-- six years of academic records and created a data file on a mainframe computer. Although for smaller institutions it is possible to download the data file onto a microcomputer and perform subsequent calculations in that environment, the size of the universe under study precluded that route. Therefore, all calculations were performed on a mainframe computer, using the SAS computer language. In addition to the students' entire academic histories (e.g., courses, grades, degrees earned, etc.), demographic information (e.g., race, sex, age, zip code zone) and previous academic history (e.g., type of high school diploma, high school district, years between high school graduation and college entrance) were also frozen. These data were analyzed to see which patterns emerged with respect to student outcomes. The main outcomes indicators which were used were: degree program completion, grade point average, credit hours completed, and ratio of credit hours attempted to credit hours completed.

The Findings

Upon analyzing the data a number of interesting patterns emerge. In the first place, based on their behavior, it is possible to group students into a number of mutually exclusive clusters:

Full-time completers

These are students who completed a degree or certificate within five semesters: 494 or 3.3% of the total cohort. Students in this category most closely approximate most lay peoples' and some educators' conception of "normal" college students; they complete their degree "on time".

Part-time completers

These students also complete a degree or certificate. However they do so in more than five semesters. Students in this category number 285 or 1.9% of the total cohort. These people also approximate "normal" behavior because, although their circumstances or desires precluded them from continual full-time attendance, they "stuck it out" and eventually earned a degree or certificate within six years.

Successful non-completers

The overwhelming majority of students in the cohort fall into this category. They are defined as students who maintained at least a 2.0 grade point average but did not earn a degree or certificate. They totalled 10,470 or 70.0%. of the cohort. These present a much more ambiguous picture than the first two categories. While students falling into this category maintained a grade point average sufficient to graduate, for any number of reasons they chose not to.

Non-successful non-completers

These students earned credit hours but did not maintain at least a 2.0 grade point average and, of course, did not earn a degree or certificate. These numbered 827 or 5.5% of the universe.

Zero-credit earners

These are students who did not earn at least one credit hour. They totalled 2,885 or 19.3% of the cohort.

Although the demographic and other patterns associated with each student cluster are interesting and worthy of discussion, they are outside the scope of this work. Rather, we will use this typology of student outcomes as a springboard for a discussion of the nature of student success and the conceptual difficulties inherent in this issue.

Performance Outcomes and Behavior Clusters

The first thing which we need to look at is the aggregate behavior of each cluster with respect to some common outcomes measures. For the purposes of this study we relied on three measures: median grade point average, median attrition ratio<1>, and median total credit hours earned. No other measures were used in the analysis because in Fall 1982 many subsequently routine assessment practices had still not been instituted across the board at the DCCCD. The data, broken down by behavior cluster, are shown in Table I. Note that full- and part-time completers achieve higher outcomes measures across the board than the cohort as a whole. Non-successful non-completers and zero-credit earners score lower on these outcomes measures than the cohort as a whole.

The ambiguity occurs in the case of the successful non-completers who represent 70% of the cohort. In all three measures they have higher outcomes than the cohort as a whole. However, their median credit hours earned shows that they fall very short

of attainment of a degree or certificate. However, because a successful non-completer does not earn a degree or certificate, does that mean that he or she failed? The data suggest that this is not necessarily the case. It should be pointed out that the data indicate that over 800 successful non- completers registered

FALL 1892 COHORT: STUDENT PERFORMANCE INDICATORS BY CLUSTER

	Full-time comp (N=494)	Part-time comp (N=285)	Succ non-comp (N=10470)	Non-suc non-comp (N=827)	Zero credit earner (N=2885)	Total Fall 82 cohort (N=14961)
Median Grade Point Average	3.29	3.18	3.00	1.50	0.00	2.81
Median Attrition Ratio<2>	1.00	1.00	1.00	0.84	0.00	1.00
Median Credit Hours	63	68	12	7	0	9

Table I

for at least one course in Spring 1988. Further, almost 250 successful non-completers have completed over 70 credit hours. Clearly, many successful non-completers are taking courses with no intention of getting an associate degree or certificate.

Student Goals

Conventional community college wisdom maintains that an important factor in a student's success, or lack thereof, is his or her educational goals and the extent to which they are

achieved. Prior to April 1986 student goal information was not collected across the Dallas County Community College District in a systematic matter. Of the 14,969 students comprising the Fall 1982 cohort, we have goal information on 2,677 of them. Although these data are not perfect, we may make a start at comparing stated intentions with ultimate outcomes, at least for a sample. The data are shown in Table II.

REASONS FOR ATTENDING BY STUDENT CLUSTER

	Full-time comp (N=494)	Part-time comp (N=285)	Succ non-comp (N=10470)	Non-suc non-comp (N=827)	Zero credit earner (N=2885)	Total Fall 82 cohort (N=14961)
University Transfer	52%	42%	37%	33%	29%	36%
Degree or Certificate	13%	25%	27%	29%	24%	26%
Upgrade job skills	11%	3%	10%	11%	13%	10%
Undecided	16%	23%	20%	22%	25%	21%
Personal interest	8%	7%	7%	5%	10%	7%

Table II

We should note that well over half of all student clusters indicated an intention either to transfer to a four-year college or to earn a degree or certificate. Obviously, 62% (33% + 29%) of the non-successful non-completer cluster unequivocally did not achieve their goals for they did not receive degrees or certificates nor would they likely be able to transfer to a four year

college. Likewise, 53% (29% + 24%) of the zero-credit earners did not achieve their goals, at least with respect to graduation or four year college transfer.

As far as the successful non-completers are concerned, we can state with certainty that 27% of the sample did not achieve its goals: a degree or certificate. Beyond that, we cannot state unequivocally whether the other successful non-completers achieved their goals or not.

Based on the data we have, performing the calculations implied above, we see that some 35% of the Fall 1982 cohort unequivocally did not achieve its goals. This equals approximately 5,240 students. Beyond those students who earned degrees or certificates, we cannot with certainty state which achieved their goals. Approximately 60% of the cohort falls in this gray area.

Some insights may be gained from non-returning student follow-up surveys which are routinely administered at the DCCCD. In a typical survey some 77% of respondents report that their initial objectives were either wholly or partially met. Of these, the initial objective of some 40% was university transfer credit.

The question which we must now examine is whether achievement of educational objectives is the sole or best indicator of student success. Let us look at the 11% of zero credit earners in Table II who indicated personal interest as their reason for attending. If these students were polled and they answered in the affirmative that their goals had been achieved and that their collegiate experience had been satisfactory, could we in good conscience assert that they had had a successful experience at the Dallas

County Community Colleges? That they were successful community college students?

Conceptualizations of Success

This last issue brings us to the heart of the problem: what do we mean when we talk about community college student success? Broadly speaking, conceptualizations of student success fall into two paradigms:

a) From the point of view of the institution

Here the student's behavior is evaluated with respect to some external set of the performance standards (e.g., grade point average, degree completion). Of course, there is no doubt that full- and part-time completers succeeded with respect to these performance standards; they maintained the minimum grade point average needed to graduate and completed their program of study. We also know that non-successful non-completers and zero-credit earners did not have successful outcomes; they did not graduate and did not maintain minimum grade point averages.

The issue becomes somewhat more ambiguous when we speak about successful non-completers. Although these maintain satisfactory grade point averages, they do not graduate. Students falling into this category earned an average of 12 credit hours and had a median grade point average of 3.0. Many of these students transfer to four-year schools without bothering to earn an associate degree. Indeed, the problematic nature of articulation between two- and four-year colleges often serves as a disincentive for a university-bound community college student to complete a degree

program at the community college. Follow-up data indicate that each year approximately 4,000 Dallas County Community College students register in a Texas public university the following fall. The overwhelming number of these people are successful non-completers. However, does this mean that a successful non-completer who does not transfer to a university is a failure? At this point, we in community colleges usually say something along the lines of "Of course not! We have many people who come to us only to take a couple of courses for personal enrichment and have no intention of pursuing further studies." This brings us the second paradigm of conceptualizations of student success.

b)<u>From the point of view of the student</u>

Here success is seen in terms of students' <u>perceptions</u> of how successful their college and other experiences were. Under this paradigm we could look at such things as student goal development and attainment, student satisfaction with the college experience, and job satisfaction after leaving college. As opposed to the <u>behavioral</u> definitions of student success posited in the first paradigm, the latter paradigm posits <u>attitudinal</u> definitions of student success.

The problem with this paradigm, of course, is that it assumes that students will be completely realistic in setting goals and completely forthright in assessing achievement or non- achievement of goals. Under this paradigm it is entirely conceivable to define as successful the example given above of the zero credit earner who was satisfied with his/her college experience.

A more basic problem with these two paradigms is, if applied consistently in all cases, they can generate conflicting evalua-

tions of student outcomes. For example, depending on how one looks at them, successful non-completers who do not transfer to universities can be seen as successes or failures. They are the latter if one sees success as the successful completion of a degree program or as transfer to a university. They are the former if they got what they wanted out of their community college experiences and were satisfied.

Conclusions

It is clear is that the issue is not whether one uses either behavioral or attitudinal definitions of student success; both paradigms are complementary. What is needed is a model of community college student behaviors which will specify under what circumstances attitudinal indicators will be used and under which conditions behavioral indicators will be used. Ideally, such a model will generate a typology of student behaviors with appropriate success indicators identified for each segment of the typology. At present a major priority of the Dallas County Community College District is the development of such a model and typology.

The research summarized in this paper represents a necessary first step in this process. As such, this is very much a work in progress. The student behavior clusters identified here will be the springboard for the generation of a more complex typology which will incorporate, among other things: a) student outcomes, b) student educational goals, and c) student demographics. Since the actual work on the typology formation has not been initiated

at the time of this writing, it is too soon to tell exactly what form it will take. The ultimate goal of this process is that once community college student success is rigorously identified and defined, community colleges will be in a better position to maximize student success.

Notes

1, 2. Attrition ratio is defined as the ratio of credits earned to credits attempted.

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